SEQUENCE LISTING

```
<110> AMICI, AUGUSTO
     CAVALLO, FEDERICA
      FORNI, GUIDO
     MARCHINI, CRISTINA
<120> P185NEU-ENCODING DNA AND THERAPEUTICAL USES THEREOF
<130> 2503-1207
<140> 10/574,897
<141> 2006-04-06
<150> PCT/EP2004/011161
<151> 2004-10-06
<150> IT MI2003 A 001942
<151> 2003-10-09
<160> 43
<170> PatentIn Ver. 3.3
<210> 1
<211> 922
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
<400> 1
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgcccccg gaatcgcggg ttacctatac atctcagcat ggccggacag 120
cctgcctgac ctcagcgtct tccagaacct gcaagtaatc cggggacgaa ttctgcacaa 180
tggcgcctac tcgctgaccc tgcaagggct gggcatcagc tggctggggc tgcgctcact 240
gagggaactg ggcagtggac tggccctcat ccaccataac acccacctct gettegtgca 300
cacggtgccc tgggaccagc tctttcggaa cccgcaccaa gctctgctcc acactgccaa 360
ccggccagag gacgagtgtg tgggcgaggg cctggcctgc caccagctgt gcgcccgagg 420
gcactgctgg ggtccagggc ccacccagtg tgtcaactgc agccagttcc ttcggggcca 480
ggagtgcgtg gaggaatgcc gagtactgca ggggctcccc agggagtatg tgaatgccag 540
gcactgtttg ccgtgccacc ctgagtgtca gccccagaat ggctcagtga cctgttttgg 600
acceggagget gaccagtgtg tggcctgtgc ccactataag gaccetecet tetgegtgge 660
ccgctgcccc agcggtgtga aacctgacct ctcctacatg cccatctgga agtttccaga 720
tgaggaggc gcatgccagc cttgccccat caactgcacc cactcctgtg tggacctgga 780
tgacaagggc tgccccgccg agcagagagc cagccctctg acgtccatcg tctctgcggt 840
ggttggcatt ctgctggtcg tggtcttggg ggtggtcttt gggatcctca tcaagcgacg 900
gcagcagaag atccggaagt aa
                                                                   922
<210> 2
<211> 2083
<212> DNA
```

<213> Artificial Sequence

```
<220>
<223> Description of Artificial Sequence: Synthetic construct
<400> 2
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccg
```

```
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgcccccg gaatcgcggg cacccaagtg tgtaccggca cagacatgaa 120
gttgcggctc cctgccagtc ctgagaccca cctggacatg ctccgccacc tgtaccaggg 180
ctgtcaggta gtgcagggca acttggagct tacctacgtg cctgccaatg ccagcctctc 240
attectgeag gacateeagg aagtteaggg ttacatgete ategeteaca accaggtgaa 300
gegegteeca etgeaaagge tgegeategt gagagggaee eagetetttg aggaeaagta 360
tgccctggct gtgctagaca accgagatcc tcaggacaat gtcgccgcct ccacccagg 420
cagaacccca gaggggctgc gggagctgca gcttcgaagt ctcacagaga tcctgaaggg 480
aggagttttg atccgtggga accctcagct ctgctaccag gacatggttt tgtggaagga 540
cgtcttccgc aagaataacc aactggctcc tgtcgatata gacaccaatc gttcccgggc 600
etgtecacet tgtgececeg cetgeaaaga caateaetgt tggggtgaga gteeggaaga 660
ctgtcagatc ttgactggca ccatctgtac cagtggttgt gcccggtgca agggccggct 720
gcccactgac tgctgccatg agcagtgtgc cgcaggctgc acgggcccca agcattctga 780
ctgcctggcc tgcctccact tcaatcatag tggtatctgt gagctgcact gcccagccct 840
cgtcacctac aacacagaca cctttgagtc catgcacaac cctgagggtc gctacacctt 900
tggtgccage tgcgtgacca cetgececta caactacetg tetacggaag tgggateetg 960
cactctggtg tgtcccccga ataaccaaga ggtcacagct gaggacggaa cacagcgttg 1020
tgagaaatgc agcaagccct gtgctcgagt gtgctatggt ctgggcatgg agcaccttcg 1080
aggggcgagg gccatcacca gtgacaatgt ccaggagttt gatggctgca agaagatctt 1140
tgggagcctg gcatttttgc cggagagctt tgatggggac ccctcctccg gcattgctcc 1200
gctgaggcct gagcagctcc aagtgttcga aaccetggag gagatcacag gttacctata 1260
catctcagca tggccggaca gcctgcctga cctcagcgtc ttccagaacc tgcaagtaat 1320
ccggggacga attctgcaca atggcgccta ctcgctgacc ctgcaagggc tgggcatcag 1380
ctggctgggg ctgcgctcac tgagggaact gggcagtgga ctggccctca tccaccataa 1440
cacccacctc tgcttcgtgc acacggtgcc ctgggaccag ctctttcgga acccgcacca 1500
agetetgete cacactgeca aceggecaga ggacgagtgt gtgggegagg geetggeetg 1560
ccaccagctg tgcgcccgag ggcactgctg gggtccaggg cccacccagt gtgtcaactg 1620
cagccagttc cttcggggcc aggagtgcgt ggaggaatgc cgagtactgc aggggctccc 1680
cagggagtat gtgaatgcca ggcactgttt gccgtgccac cctgagtgtc agccccagaa 1740
tggctcagtg acctgttttg gaccggaggc tgaccagtgt gtggcctgtg cccactataa 1800
ggaccetece ttetgegtgg ecegetgeee cageggtgtg aaacetgace tetectacat 1860
gcccatctgg aagtttccag atgaggaggg cgcatgccag ccttgcccca tcaactgcac 1920
ccactcctgt gtggacctgg atgacaaggg ctgccccgcc gagcagagag ccagcctct 1980
qacqtccatc qtctctqcqq tqqttqqcat tctqctqgtc gtggtcttgg gggtggtctt 2040
tgggatcctc atcaagcgac ggcagcagaa gatccggaag taa
```

```
<210> 3
<211> 1939
<212> DNA
<213> Artificial Sequence
```

<220>

<223> Description of Artificial Sequence: Synthetic
construct

<400> 3
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgcccccg gaatcgcggc tagcctgtcc ttcctgcagg atatccagga 120
ggtgcagggc tacgtgctca tcgctcacaa ccaagtgagg caggtcccac tgcagaggct 180
gcggattgtg cgaggcaccc agctctttga ggacaactat gccctggccg tgctagacaa 240
tggagacccg ctgaacaata ccaccctgt cacaggggcc tccccaggag gcctgcggga 300

gctgcagctt cgaagcctca cagagatctt gaaaggaggg gtcttgatcc agcggaaccc 360

```
ccagetetge taccaggaca egattttgtg gaaggacate ttecacaaga acaaccaget 420
ggctctcaca ctgatagaca ccaaccgctc tcgggcctgc cacccctgtt ctccgatgtg 480
taagggetee egetgetggg gagagagtte tgaggattgt cagageetga egegeaetgt 540
ctgtgccggt ggctgtgccc gctgcaaggg gccactgccc actgactgct gccatgagca 600
gtgtgctgcc ggctgcacgg gccccaagca ctctgactgc ctggcctgcc tccacttcaa 660
ccacagtggc atctgtgagc tgcactgccc agccctggtc acctacaaca cagacacgtt 720
tgagtccatg cccaatcccg agggccggta tacattcggc gccagctgtg tgactgcctg 780
tecetacaae tacetteta eggaegtggg ateetgeace etegtetgee eeetgeacaa 840
ccaagaggtg acagcagagg atggaacaca gcggtgtgag aagtgcagca agccctgtgc 900
ccgagtgtgc tatggtctgg gcatggagca cttgcgagag gtgagggcag ttaccagtgc 960
caatatccag gagtttgctg gctgcaagaa gatctttggg agcctggcat ttctgccgga 1020
gagetttgat ggggacecag ectecaacac tgeecegete cagecagage agetecaagt 1080
gtttgagact ctggaagaga tcacaggtta cctatacatc tcagcatggc cggacagcct 1140
gcctgacctc agcgtcttcc agaacctgca agtaatccgg ggacgaattc tgcacaatgg 1200
cgcctactcg ctgaccctgc aagggctggg catcagctgg ctggggctgc gctcactgag 1260
ggaactgggc agtggactgg ccctcatcca ccataacacc cacctctgct tcgtgcacac 1320
ggtgccctgg gaccagctct ttcggaaccc gcaccaagct ctgctccaca ctgccaaccg 1380
gccagaggac gagtgtgtgg gcgagggcct ggcctgccac cagctgtgcg cccgagggca 1440
ctgctggggt ccagggccca cccagtgtgt caactgcagc cagttccttc ggggccagga 1500
gtgcgtggag gaatgccgag tactgcaggg gctccccagg gagtatgtga atgccaggca 1560
ctgtttgccg tgccaccctg agtgtcagcc ccagaatggc tcagtgacct gttttggacc 1620
ggaggctgac cagtgtgtgg cctgtgccca ctataaggac cctcccttct gcgtggcccg 1680
ctgccccagc ggtgtgaaac ctgacctctc ctacatgccc atctggaagt ttccagatga 1740
ggagggcgca tgccagcctt gccccatcaa ctgcacccac tcctgtgtgg acctggatga 1800
caagggetge eccgeegage agagageeag ecctetgaeg tecategtet etgeggtggt 1860
tggcattctg ctggtcgtgg tcttgggggt ggtctttggg atcctcatca agcgacggca 1920
                                                                  1939
gcagaagatc cggaagtaa
<210> 4
```

```
<210> 4
<211> 1699
<212> DNA
<213> Artificial Sequence
```

<220>

<223> Description of Artificial Sequence: Synthetic construct

```
<400> 4
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgcccccg gaatcgcggc tagcggaggg gtcttgatcc agcggaaccc 120
ccagctctgc taccaggaca cgattttgtg gaaggacatc ttccacaaga acaaccagct 180
ggctctcaca ctgatagaca ccaaccgctc tcgggcctgc cacccctgtt ctccgatgtg 240
taagggctcc cgctgctggg gagagagttc tgaggattgt cagagcctga cgcgcactgt 300
ctqtqccqqt ggctgtgccc gctgcaaggg gccactgccc actgactgct gccatgagca 360
gtgtgctgcc ggctgcacgg gccccaagca ctctgactgc ctggcctgcc tccacttcaa 420
ccacagtggc atctgtgagc tgcactgccc agccctggtc acctacaaca cagacacgtt 480
tgagtccatg cccaatcccg agggccggta tacattcggc gccagctgtg tgactgcctg 540
tecetacaae tacettteta eggaegtggg ateetgeace etegtetgee eeetgeacaa 600
ccaagaggtg acagcagagg atggaacaca gcggtgtgag aagtgcagca agccctgtgc 660
ccgagtgtgc tatggtctgg gcatggagca cttgcgagag gtgagggcag ttaccagtgc 720
caatatccag gagtttgctg gctgcaagaa gatctttggg agcctggcat ttctgccgga 780
gagetttgat ggggaeceag eetecaaeae tgeecegete cagecagage agetecaagt 840
gtttgagact ctggaagaga tcacaggtta cctatacatc tcagcatggc cggacagcct 900
gcctgacctc agcgtcttcc agaacctgca agtaatccgg ggacgaattc tgcacaatgg 960
cqcctactcq ctqaccctqc aagggctggg catcagctgg ctggggctgc gctcactgag 1020
ggaactgggc agtggactgg ccctcatcca ccataacacc cacctctgct tcgtgcacac 1080
ggtgccctgg gaccagctct ttcggaaccc gcaccaagct ctgctccaca ctgccaaccg 1140
```

```
gccagaggac gagtgtgtgg gcgagggcct ggcctgccac cagctgtgcg cccgagggca 1200
ctgctggggt ccagggcca cccagtgtgt caactgcagc cagttccttc ggggccagga 1260
gtgcgtggag gaatgccgag tactgcaggg gctccccagg gagtatgtga atgccaggca 1320
ctgtttgccg tgccaccctg agtgtcagcc ccagaatggc tcagtgacct gttttggacc 1380
ggaggetgae cagtgtgtgg cetgtgeeca etataaggae cetecettet gegtggeecg 1440
ctgccccaqc qqtqtqaaac ctqacctctc ctacatqccc atctgqaaqt ttccaqatga 1500
ggagggcgca tgccagcctt gccccatcaa ctgcacccac tcctgtgtgg acctggatga 1560
 caagggctgc cccgccgagc agagagccag ccctctgacg tccatcgtct ctgcggtggt 1620
 tggcattetg etggtegtgg tettgggggt ggtetttggg atecteatea agegaeggea 1680
gcagaagatc cggaagtaa
 <210> 5
 <211> 1459
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: Synthetic
       construct
 <400> 5
 ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
 cctcgccctc ctgcccccg gaatcgcggc tagcctgccc actgactgct gccatgagca 120
 gtgtgctgcc ggctgcacgg gccccaagca ctctgactgc ctggcctgcc tccacttcaa 180
 ccacaqtqqc atctqtqaqc tqcactqccc agccctggtc acctacaaca cagacacgtt 240
 tgagtccatg cccaatcccg agggccggta tacattcggc gccagctgtg tgactgcctg 300
 tccctacaac tacctttcta cggacgtggg atcctgcacc ctcgtctgcc ccctgcacaa 360
 ccaagaggtg acagcagagg atggaacaca gcggtgtgag aagtgcagca agccctgtgc 420
 ccgagtgtgc tatggtctgg gcatggagca cttgcgagag gtgagggcag ttaccagtgc 480
 caatatccag gagtttgctg gctgcaagaa gatctttggg agcctggcat ttctgccgga 540
 gagetttgat ggggaeceag cetecaaeae tgeecegete eagecagage ageteeaagt 600
 gtttgagact ctggaagaga tcacaggtta cctatacatc tcagcatggc cggacagcct 660
 gcctgacctc agcgtcttcc agaacctgca agtaatccgg ggacgaattc tgcacaatgg 720
 cgcctactcg ctgaccctgc aagggctggg catcagctgg ctggggctgc gctcactgag 780
 ggaactgggc agtggactgg ccctcatcca ccataacacc cacctctgct tcgtgcacac 840
 ggtgccctgg gaccagetet tteggaacee geaccaaget etgeteeaca etgeeaaceg 900
 gccagaggac gagtgtgtgg gcgagggcct ggcctgccac cagctgtgcg cccgagggca 960
 ctgctggggt ccagggccca cccagtgtgt caactgcagc cagttccttc ggggccagga 1020
 gtgcgtggag gaatgccgag tactgcaggg/gctccccagg gagtatgtga atgccaggca 1080
 ctgtttgccg tgccaccctg agtgtcagcc ccagaatggc tcagtgacct gttttggacc 1140
 ggaggctgac cagtgtgtgg cctgtgccca ctataaggac cctcccttct gcgtggcccg 1200
 ctgccccagc ggtgtgaaac ctgacctctc ctacatgccc atctggaagt ttccagatga 1260
 ggagggcgca tgccagcctt gccccatcaa ctgcacccac tcctgtgtgg acctggatga 1320
 caagggetge eeegeegage agagageeag eeetetgaeg teeategtet etgeggtggt 1380
 tggcattctg_ctggtcgtgg tcttgggggt ggtctttggg atcctcatca agcgacggca 1440
                                                                    1459
 gcagaagatc cggaagtaa
 <210> 6
 <211> 1219
 <212> DNA
 <213> Artificial Sequence
 <220>
. <223> Description of Artificial Sequence: Synthetic
       construct
```

```
<400> 6
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgccccccg gaatcgcggc tagctgcacc ctcgtctgcc ccctgcacaa 120
ccaagaggtg acagcagagg atggaacaca gcggtgtgag aagtgcagca agccctgtgc 180
ccgagtgtgc tatggtctgg gcatggagca cttgcgagag gtgagggcag ttaccagtgc 240
caatatccag gagtttgctg gctgcaagaa gatctttggg agcctggcat ttctgccgga 300
gagetttgat ggggacccag cetecaacae tgeeeegete cagecagage agetecaagt 360
gtttgagact ctggaagaga tcacaggtta cctatacatc tcagcatggc cggacagcct 420
gcctgacctc agegtcttcc agaacctgca agtaatccgg ggacgaattc tgcacaatgg 480
cgcctactcg ctgaccctgc aagggctggg catcagctgg ctggggctgc gctcactgag 540
ggaactgggc agtggactgg ccctcatcca ccataacacc cacctctgct tcgtgcacac 600
ggtgccctgg gaccagctct ttcggaaccc gcaccaagct ctgctccaca ctgccaaccg 660
gccagaggac gagtgtgtgg gcgagggcct ggcctgccac cagctgtgcg cccgagggca 720
ctgctggggt ccagggccca cccagtgtgt caactgcagc cagttccttc ggggccagga 780
gtgcgtggag gaatgccgag tactgcaggg gctccccagg gagtatgtga atgccaggca 840
ctgtttgccg tgccaccctg agtgtcagcc ccagaatggc tcagtgacct gttttggacc 900
ggaggctgac cagtgtgtgg cctgtgccca ctataaggac cctcccttct gcgtggcccg 960
ctgccccagc ggtgtgaaac ctgacctctc ctacatgccc atctggaagt ttccagatga 1020
ggagggcgca tgccagcctt gccccatcaa ctgcacccac tcctgtgtgg acctggatga 1080
caagggctgc cccgccgagc agagagccag ccctctgacg tccatcgtct ctgcggtggt 1140
tggcattctg ctggtcgtgg tctttgggggt ggtctttggg atcctcatca agcgacggca 1200
gcagaagatc cggaagtaa
<210> 7
<211> 979
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      construct
<400> 7
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgccccccg gaatcgcggc tagcccgctc cagccagagc agctccaagt 120
gtttgagact ctggaagaga tcacaggtta cctatacatc tcagcatggc cggacagcct 180
gcctgacctc agcgtcttcc agaacctgca agtaatccgg ggacgaattc tgcacaatgg 240
cgcctactcg ctgaccctgc aagggctggg catcagctgg ctggggctgc gctcactgag 300
ggaactgggc agtggactgg ccctcatcca ccataacacc cacctctgct tcgtgcacac 360
ggtgccctgg gaccagctct ttcggaaccc gcaccaagct ctgctccaca ctgccaaccg 420
gccagaggac gagtgtgtgg gcgagggcct ggcctgccac cagctgtgcg cccgagggca 480
ctgctggggt ccagggccca cccagtgtgt caactgcagc cagttccttc ggggccagga 540
gtgcgtggag gaatgccgag tactgcaggg gctccccagg gagtatgtga atgccaggca 600
ctgtttgccg tgccaccctg agtgtcagcc ccagaatggc tcagtgacct gttttggacc 660
ggaggctgac cagtgtgtgg cctgtgccca ctataaggac cctcccttct gcgtggcccg 720
ctgccccagc ggtgtgaaac ctgacctctc ctacatgccc atctggaagt ttccagatga 780
ggagggcgca tgccagcctt gccccatcaa ctgcacccac tcctgtgtgg acctggatga 840
caagggctgc cccgccgagc agagagccag ccctctgacg tccatcgtct ctgcggtggt 900
tggcattctg ctggtcgtgg tcttgggggt ggtctttggg atcctcatca agcgacggca 960
gcagaagatc cggaagtaa
                                                                   979
<210> 8
<211> 739
<212> DNA
<213> Artificial Sequence
```

```
<220>
<223> Description of Artificial Sequence: Synthetic
     construct
<400> 8
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgcccccg gaatcgcggc tagcaacacc cacctctgct tcgtgcacac 120
ggtgccctgg gaccagctct ttcggaaccc gcaccaagct ctgctccaca ctgccaaccg 180
gccagaggac gagtgtgtgg gcgagggct ggcctgccac cagctgtgcg cccgagggca 240
ctgctggggt ccagggccca cccagtgtgt caactgcagc cagttccttc ggggccagga 300
gtgcgtggag gaatgccgag tactgcaggg gctccccagg gagtatgtga atgccaggca 360
ctgtttgccg tgccaccctg agtgtcagcc ccagaatggc tcagtgacct gttttggacc 420
ggaggetgae eagtgtgtgg cetgtgeeca etataaggae cetecettet gegtggeecg 480
ctgccccagc ggtgtgaaac ctgacctctc ctacatgccc atctggaagt ttccagatga 540
ggagggcgca tgccagcctt gccccatcaa ctgcacccac tcctgtgtgg acctggatga 600
caagggctgc cccgccgagc agagagccag ccctctgacg tccatcgtct ctgcggtggt 660
tggcattctg ctggtcgtgg tcttgggggt ggtctttggg atcctcatca agcgacggca 720
gcagaagatc cggaagtaa
<210> 9
<211> 499
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      construct
<400> 9
ccqqqccgqa gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgccccccg gaatcgcggc tagccccagg gagtatgtga atgccaggca 120
ctgtttgccg tgccaccctg agtgtcagcc ccagaatggc tcagtgacct gttttggacc 180
ggaggctgac cagtgtgtgg cctgtgccca ctataaggac cctcccttct gcgtggcccg 240
ctgccccagc ggtgtgaaac ctgacctctc ctacatgccc atctggaagt ttccagatga 300
ggagggcgca tgccagcctt gccccatcaa ctgcacccac tcctgtgtgg acctggatga 360
caagggctgc cccgccgagc agagagccag ccctctgacg tccatcgtct ctgcggtggt 420
tggcattctg ctggtcgtgg tcttgggggt ggtctttggg atcctcatca agcgacggca 480
gcagaagatc cggaagtaa
<210> 10
<211> 2086
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      construct
<400> 10
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgcccccg gaatcgcggg cacccaagtg tgtaccggca cagacatgaa 120
qttqcqqctc cctqccagtc ctgagaccca cctggacatg ctccgccacc tgtaccaggg 180
ctgtcaggta gtgcagggca acttggagct tacctacgtg cctgccaatg ccagcgctag 240
cetgteette etgeaggata teeaggaggt geagggetae gtgeteateg eteacaacca 300
agtgaggcag gtcccactgc agaggctgcg gattgtgcga ggcacccagc tctttgagga 360
caactatgcc ctggccgtgc tagacaatgg agacccgctg aacaatacca cccctgtcac 420
```

```
aggggcctcc ccaggaggcc tgcgggagct gcagcttcga agcctcacag agatcttgaa 480
aggaggggtc ttgatccagc ggaaccccca gctctgctac caggacacga ttttgtggaa 540
ggacatette cacaagaaca accagetgge teteacaetg atagacaeca accgeteteg 600
ggcctgccac ccctgttctc cgatgtgtaa gggctcccgc tgctggggag agagttctga 660
ggattgtcag agcctgacgc gcactgtctg tgccggtggc tgtgcccgct gcaaggggcc 720
actgcccact gactgctgcc atgagcagtg tgctgccggc tgcacgggcc ccaagcactc 780
tgactgcctg gcctgcctcc acttcaacca cagtggcatc tgtgagctgc actgcccagc 840
cctggtcacc tacaacacag acacgtttga gtccatgccc aatcccgagg gccggtatac 900
atteggegee agetgtgtga etgeetgtee etacaactae etttetaegg aegtgggate 960
ctgcaccete gtetgeecce tgcacaacca agaggtgaca gcagaggatg gaacacageg 1020
gtgtgagaag tgcagcaagc cctgtgcccg agtgtgctat ggtctgggca tggagcactt 1080
gcgagaggtg agggcagtta ccagtgccaa tatccaggag tttgctggct gcaagaagat 1140
ctttgggagc ctggcatttc tgccggagag ctttgatggg gacccagcct ccaacactgc 1200
cccgctccag ccagagcagc tccaagtgtt tgagactctg gaagagatca caggttacct 1260
atacatetea geatggeegg acageetgee tgaeeteage gtetteeaga acetgeaagt 1320
aatccgggga cgaattctgc acaatggcgc ctactcgctg accctgcaag ggctgggcat 1380
cagctggctg gggctgcgct cactgaggga actgggcagt ggactggccc tcatccacca 1440
taacacccac ctctgcttcg tgcacacggt gccctgggac cagctctttc ggaacccgca 1500
ccaagetetg etecacactg ecaaceggee agaggaegag tgtgtgggeg agggeetgge 1560
ctgccaccag ctgtgcgccc gagggcactg ctggggtcca gggcccaccc agtgtgtcaa 1620
ctgcagccag ttccttcggg gccaggagtg cgtggaggaa tgccgagtac tgcaggggct 1680
ccccagggag tatgtgaatg ccaggcactg tttgccgtgc caccctgagt gtcagcccca 1740
gaatggctca gtgacctgtt ttggaccgga ggctgaccag tgtgtggcct gtgcccacta 1800
taaggaccet ceettetgeg tggecegetg ceeeageggt gtgaaacetg aceteteeta 1860
catgcccatc tggaagtttc cagatgagga gggcgcatgc cagccttgcc ccatcaactg 1920
cacccactcc tgtgtggacc tggatgacaa gggctgcccc gccgagcaga gagccagccc 1980
totgacgtoc atogtototg oggtggttgg cattotgotg gtogtggtot tgggggtggt 2040
ctttgggatc ctcatcaagc gacggcagca gaagatccgg aagtaa
                                                                   2086
<210> 11
<211> 2086
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      construct
<400> 11
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgccccccg gaatcgcggg cacccaagtg tgtaccggca cagacatgaa 120
gttgcggctc cctgccagtc ctgagaccca cctggacatg ctccgccacc tgtaccaggg 180
ctgtcaggta gtgcagggca acttggagct tacctacgtg cctgccaatg ccagcctctc 240
attectgeag gacatecagg aagtteaggg ttacatgete ategeteaca accaggtgaa 300
gegegteeca etgeaaagge tgegeategt gagagggaee eagetetttg aggaeaagta 360
tgccctggct gtgctagaca accgagatcc tcaggacaat gtcgccgcct ccaccccagg 420
cagaacccca gaggggctgc gggagctgca gcttcgaagt ctcacagaga tcctggctag 480
cggaggggtc ttgatccagc ggaaccccca gctctgctac caggacacga ttttgtggaa 540
qqacatcttc cacaaqaaca accaqctqqc tctcacactg atagacacca accgctctcg 600
qqcctqccac ccctgttctc cgatgtgtaa gggctcccgc tgctggggag agagttctga 660
ggattgtcag agcctgacgc gcactgtctg tgccggtggc tgtgcccgct gcaaggggcc 720
actgcccact gactgctgcc atgagcagtg tgctgccggc tgcacgggcc ccaagcactc 780
tgactgcctg gcctgcctcc acttcaacca cagtggcatc tgtgagctgc actgcccagc 840
cctggtcacc tacaacacag acacgtttga gtccatgccc aatcccgagg gccggtatac 900
atteggegee agetgtgtga etgeetgtee etacaactae etttetaegg aegtgggate 960
ctgcaccete gtetgcecce tgcacaacca agaggtgaca gcagaggatg gaacacageg 1020
gtgtgagaag tgcagcaagc cctgtgcccg agtgtgctat ggtctgggca tggagcactt 1080
```

```
gcgagaggtg agggcagtta ccagtgccaa tatccaggag tttgctggct gcaagaagat 1140
ctttgggagc ctggcatttc tgccggagag ctttgatggg gacccagcct ccaacactgc 1200
cccgctccag ccagagcagc tccaagtgtt tgagactctg gaagagatca caggttacct 1260
atacatetea geatggeegg acageetgee tgaeeteage gtetteeaga acetgeaagt 1320
aatccgggga cgaattctgc acaatggcgc ctactcgctg accctgcaag ggctgggcat 1380
cagctggctg gggctgcgct cactgaggga actgggcagt ggactggccc tcatccacca 1440
taacacccac ctctgcttcg tgcacacggt gccctgggac cagctctttc ggaacccgca 1500
ccaagetetg etecacactg ccaaceggee agaggaegag tgtgtgggeg agggeetgge 1560
ctgccaccag ctgtgcgccc gagggcactg ctggggtcca gggcccaccc agtgtgtcaa 1620
ctgcagccag ttccttcggg gccaggagtg cgtggaggaa tgccgagtac tgcaggggct 1680
ccccagggag tatgtgaatg ccaggcactg tttgccgtgc caccctgagt gtcagcccca 1740
gaatggctca gtgacctgtt ttggaccgga ggctgaccag tgtgtggcct gtgcccacta 1800
taaggaccct cccttctgcg tggcccgctg ccccagcggt gtgaaacctg acctctccta 1860
catgcccatc tggaagtttc cagatgagga gggcgcatgc cagccttgcc ccatcaactg 1920
cacccactcc tgtgtggacc tggatgacaa gggctgcccc gccgagcaga gagccagccc 1980
tetgaegtee ategtetetg eggtggttgg cattetgetg gtegtggtet tgggggtggt 2040
ctttgggatc ctcatcaagc gacggcagca gaagatccgg aagtaa
```

<210> 12

<211> 2086

<212> DNA

<213> Artificial Sequence

<220>

<400> 12 ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60 7 cctcgcctc ctgcccccg gaatcgcggg cacccaagtg tgtaccggca cagacatgaa 120 qttqcqqctc cctqccagtc ctgagaccca cctggacatg ctccqccacc tgtaccaggg 180 ctgtcaggta gtgcagggca acttggagct tacctacgtg cctgccaatg ccagcctctc 240 attcctgcag gacatccagg aagttcaggg ttacatgctc atcgctcaca accaggtgaa 300 gcgcgtccca ctgcaaaggc tgcgcatcgt gagagggacc cagctctttg aggacaagta 360 tgccctggct gtgctagaca accgagatec teaggacaat gtcgccgcct ccaccccagg 420 cagaacccca gaggggctgc gggagctgca gcttcgaagt ctcacagaga tcctgaaggg 480 aggagttttg atccqtqqqa accctcagct ctgctaccag gacatggttt tgtggaagga 540 cgtcttccgc aagaataacc aactggctcc tgtcgatata gacaccaatc gttcccgggc 600 ctgtccacct tgtgcccccg cctgcaaaga caatcactgt tggggtgaga gtccggaaga 660 ctgtcagatc ttgactggca ccatctgtac cagtggttgt gcccggtgca agggcgctag 720 cctgcccact gactgctgcc atgagcagtg tgctgccggc tgcacgggcc ccaagcactc 780 tqactqcctq qcctqcctcc acttcaacca cagtggcatc tgtgagctgc actgcccagc 840 cctggtcacc tacaacacag acacgtttga gtccatgccc aatcccgagg gccggtatac 900 atteggegee agetgtgtga etgeetgtee etacaactae etttetaegg aegtgggate 960 ctgcaccctc gtctgccccc tgcacaacca agaggtgaca gcagaggatg gaacacagcg 1020 gtgtgagaag tgcagcaagc cctgtgcccg agtgtgctat ggtctgggca tggagcactt 1080 gcgagaggtg agggcagtta ccagtgccaa tatccaggag tttgctggct gcaagaagat 1140 ctttgggagc ctggcatttc tgccggagag ctttgatggg gacccagcct ccaacactgc 1200 cccgctccag ccagagcagc tccaagtgtt tgagactctg gaagagatca caggttacct 1260 atacatetea geatggeegg acageetgee tgaeeteage gtetteeaga acetgeaagt 1320 aatccgggga cgaattctgc acaatggcgc ctactcgctg accctgcaag ggctgggcat 1380 cagctggctg gggctgcgct cactgaggga actgggcagt ggactggccc tcatccacca 1440 taacacccac ctctgcttcg tgcacacggt gccctgggac cagctctttc ggaacccgca 1500 ccaagetetg etecacaetg ccaaceggee agaggaegag tgtgtgggeg agggeetgge 1560 ctgccaccag ctgtgcgccc gagggcactg ctggggtcca gggcccaccc agtgtgtcaa 1620 ctgcagccag ttccttcggg gccaggagtg cgtggaggaa tgccgagtac tgcaggggct 1680 ccccagggag tatgtgaatg ccaggcactg tttgccgtgc caccctgagt gtcagcccca 1740

```
gaatggctca gtgacctgtt ttggaccgga ggctgaccag tgtgtggcct gtgcccacta 1800
taaggaccct cccttctgcg tggcccgctg ccccagcggt gtgaaacctg acctctccta 1860
catgcccatc tggaagtttc cagatgagga gggcgcatgc cagccttgcc ccatcaactg 1920
cacccactcc tgtgtggacc tggatgacaa gggctgcccc gccgagcaga gagccagccc 1980
totgacgtoc atogtototg oggtggttgg cattotgotg gtogtggtot tgggggtggt 2040
ctttgggatc ctcatcaagc gacggcagca gaagatccgg aagtaa
<210> 13
<211> 2086
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      construct
<400> 13
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cctcgccctc ctgcccccg gaatcgcggg cacccaagtg tgtaccggca cagacatgaa 120
gttgcggctc cctgccagtc ctgagaccca cctggacatg ctccgccacc tgtaccaggg 180
ctgtcaggta gtgcagggca acttggagct tacctacgtg cctgccaatg ccagcctctc 240
attectgeag gacatecagg aagtteaggg ttacatgete ategeteaca accaggtgaa 300
gcgcgtccca ctgcaaaggc tgcgcatcgt gagagggacc cagctctttg aggacaagta 360
tgccctggct gtgctagaca accgagatcc tcaggacaat gtcgccgcct ccaccccagg 420
cagaacccca gaggggctgc gggagctgca gcttcgaagt ctcacagaga tcctgaaggg 480
aggagttttg atccgtggga accetcaget etgetaceag gaeatggttt tgtggaagga 540
cgtcttccgc aagaataacc aactggctcc tgtcgatata gacaccaatc gttcccgggc 600
ctgtccacct tgtgcccccg cctgcaaaga caatcactgt tggggtgaga gtccggaaga 660
ctgtcagatc ttgactggca ccatctgtac cagtggttgt gcccggtgca agggccggct 720
gcccactgac tgctgccatg agcagtgtgc cgcaggctgc acgggcccca agcattctga 780
ctgcctggcc tgcctccact tcaatcatag tggtatctgt gagctgcact gcccagccct 840
cqtcacctac aacacagaca cctttgagtc catgcacaac cctgagggtc gctacacctt 900
tggtgccagc tgcgtgacca cctgccccta caactacctg tctacggaag tgggagctag 960
ctgcaccctc gtctgccccc tgcacaacca agaggtgaca gcagaggatg gaacacagcg 1020
gtgtgagaag tgcagcaagc cctgtgcccg agtgtgctat ggtctgggca tggagcactt 1080
gcgagaggtg agggcagtta ccagtgccaa tatccaggag tttgctggct gcaagaagat 1140
ctttqqqaqc ctqqcatttc tqccqqaqaq ctttgatggg gacccagcct ccaacactgc 1200
cccgctccag ccagagcagc tccaagtgtt tgagactctg gaagagatca caggttacct 1260
atacatetea geatggeegg acageetgee tgaeeteage gtetteeaga acetgeaagt 1320
aatccgggga cgaattctgc acaatggcgc ctactcgctg accctgcaag ggctgggcat 1380
cagctggctg gggctgcgct cactgaggga actgggcagt ggactggccc tcatccacca 1440
taacacccac ctctgcttcg tgcacacggt gccctgggac cagctctttc ggaacccgca 1500
ccaaqctctq ctccacactq ccaaccgqcc agaggacgag tgtgtgggcg agggcctggc 1560
ctgccaccag ctgtgcgccc gagggcactg ctggggtcca gggcccaccc agtgtgtcaa 1620
ctgcagccag ttccttcggg gccaggagtg cgtggaggaa tgccgagtac tgcaggggct 1680
ccccagggag tatgtgaatg ccaggcactg tttgccgtgc caccctgagt gtcagcccca 1740
gaatggctca gtgacctgtt ttggaccgga ggctgaccag tgtgtggcct gtgcccacta 1800
taaggaccct cccttctgcg tggcccgctg ccccagcggt gtgaaacctg acctctccta 1860
catqcccatc tqqaaqtttc cagatgagga gggcgcatgc cagccttgcc ccatcaactg 1920
cacccactcc tgtgtggacc tggatgacaa gggctgcccc gccgagcaga gagccagccc 1980
totgacgtoc atogtototg oggtggttgg cattetgotg gtogtggtot tgggggtggt 2040
```

ctttgggatc ctcatcaagc gacggcagca gaagatccgg aagtaa

```
<210> 14
<211> 2086
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      construct
<400> 14
ccgggccgga gccgcaatga tcatcatgga gctggcggcc tggtgccgct gggggttcct 60
cetegecete etgececeg gaategeggg cacceaagtg tgtaceggca cagacatgaa 120
gttgcggctc cctgccagtc ctgagaccca cctggacatg ctccgccacc tgtaccaggg 180
ctgtcaggta gtgcagggca acttggagct tacctacgtg cctgccaatg ccagcctctc 240
attectgcag gacatecagg aagtteaggg ttacatgete ategeteaca accaggtgaa 300
gcgcgtccca ctgcaaaggc tgcgcatcgt gagagggacc cagctctttg aggacaagta 360
tgccctggct gtgctagaca accgagatcc tcaggacaat gtcgccgcct ccaccccagg 420
cagaacccca gaggggctgc gggagctgca gcttcgaagt ctcacagaga tcctgaaggg 480
aggagttttg atccgtggga accctcagct ctgctaccag gacatggttt tgtggaagga 540
cgtcttccgc aagaataacc aactggctcc tgtcgatata gacaccaatc gttcccgggc 600
ctgtccacct tgtgcccccg cctgcaaaga caatcactgt tggggtgaga gtccggaaga 660
ctgtcagatc ttgactggca ccatctgtac cagtggttgt gcccggtgca agggccggct 720
geceaetgae tgetgeeatg ageagtgtge egeaggetge aegggeeeea ageattetga 780
ctgcctggcc tgcctccact tcaatcatag tggtatctgt gagctgcact gcccagccct 840
cgtcacctac aacacagaca cctttgagtc catgcacaac cctgagggtc gctacacctt 900
tggtgccagc tgcgtgacca cctgccccta caactacctg tctacggaag tgggatcctg 960
cactctggtg tgtcccccga ataaccaaga ggtcacagct gaggacggaa cacagcgttg 1020
tgagaaatgc agcaagccct gtgctcgagt gtgctatggt ctgggcatgg agcaccttcg 1080
aggggcgagg gccatcacca gtgacaatgt ccaggagttt gatggctgca agaagatctt 1140
tgggagcctg gcatttttgc cggagagctt tgatggggac ccctcctccg gcattgctag 1200
cccgctccag ccagagcagc tccaagtgtt tgagactctg gaagagatca caggttacct 1260
atacatetea geatggeegg acageetgee tgaeeteage gtetteeaga acetgeaagt 1320
aatccgggga cgaattctgc acaatggcgc ctactcgctg accctgcaag ggctgggcat 1380
cagctggctg gggctgcgct cactgaggga actgggcagt ggactggccc tcatccacca 1440
taacacccac ctctgcttcg tgcacacggt gccctgggac cagctctttc ggaacccgca 1500
ccaagetetg etecacaetg ecaaceggee agaggaegag tgtgtgggeg agggeetgge 1560
ctgccaccag ctgtgcgccc gagggcactg ctggggtcca gggcccaccc agtgtgtcaa 1620
ctgcagccag ttccttcggg gccaggagtg cgtggaggaa tgccgagtac tgcaggggct 1680
ccccagggag tatgtgaatg ccaggcactg tttgccgtgc caccctgagt gtcagcccca 1740
gaatggetea gtgaeetgtt ttggaeegga ggetgaeeag tgtgtggeet gtgeeeaeta 1800
taaggaccct cccttctgcg tggcccgctg ccccagcggt gtgaaacctg acctctccta 1860
catgcccatc tggaagtttc cagatgagga gggcgcatgc cagccttgcc ccatcaactg 1920
cacccactcc tgtgtggacc tggatgacaa gggctgcccc gccgagcaga gagccagccc 1980
tetgaegtee ategtetetg eggtggttgg cattetgetg gtegtggtet tgggggtggt 2040
ctttgggatc ctcatcaagc gacggcagca gaagatccgg aagtaa
                                                                   2086
<210> 15
<211> 71
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 15
ccggaagtaa ataatcgacg ttcaaataat cgacgttcaa ataatcgacg ttcaaataat 60
```

cgacgttcaa t

<210> 16 <211> 71 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 16 ctagattgaa cgtcgattat ttgaacgtcg attatttgaa cgtcgattat ttgaacgtcg attatttact t	60 71
<210> 17 ·	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	,
<400> 17 ccggaagtaa ataatagagc ttcaaataat agagcttcaa ataatagagc ttcaaataat agagcttcaa t	
<210> 18 <211> 71 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 18 ctagattgaa gctctattat ttgaagctct attatttgaa gctctattat ttgaagctct attatttact t	60 71
<210> 19 <211> 27 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 19 ctaggaagct tgtttaactt gctagct	2

```
<210> 20
<211> 27
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 20
                                                                    27
agctagctag caagttaaac aagcttc
<210> 21
<211> 68
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 21
ctagataatc gacgttcaaa taatcgacgt tcaaataatc gacgttcaaa taatcgacgt 60
tcaaqttt
<210> 22
<211> 64
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      {\tt oligonucleotide}
<400> 22
aaacttgaac gtcgattatt tgaacgtcga ttatttgaac gtcgattatt tgaacgtcga 60
ttat
<210> 23
<211> 68
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
ctagataata gagcttcaaa taatagagct tcaaataata gagcttcaaa taatagagct 60
```

tcaagttt

```
<210> 24
<211> 64
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 24
aaacttgaag ctctattatt tgaagctcta ttatttgaag ctctattatt tgaagctcta 60
<210> 25
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      primer
<400> 25
                                                                    20
taatacgact cactataggg
<210> 26
<211> 32
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
                                                                    32
ggccggttac ccgcgattcc ggggggcagg ag
<210> 27
<211> 35
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 27
                                                                    35
ccggctagct agcctgtcct tcctgcagga tatcc
<210> 28
<211> 35
<212> DNA
<213> Artificial Sequence
```

<220> <223>	Description of Artificial Sequence: Synthetic oligonucleotide	
<400> ccggct	28 agct agcggagggg tcttgatcca gcgga	35
<210><211><211><212><213>	35	
<220> <223>	Description of Artificial Sequence: Synthetic oligonucleotide	
<400> ccggc	29 Laget agectgeeca etgaetgetg ceatg	35
<210><211><212><212><213>	35	
<220> <223>	Description of Artificial Sequence: Synthetic oligonucleotide	
<400> ccggc	30 taget agetgeacee tegtetgeee eetge	35
<210><211><211><212><213>	35	
<220> <223>	Description of Artificial Sequence: Synthetic oligonucleotide	
<400> ccggc	31 taget agecegetee agecagagea getee	35
<210><211><211><212><213>	35	
<220> <223>	Description of Artificial Sequence: Synthetic oligonucleotide	
<400>	32 taget ageaacacce acetetgett egtge	35

₹,

```
<210> 33
<211> 35
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 33
                                                                    35
ccggctagct agccccaggg agtatgtgaa tgcca
<210> 34
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
<400> 34
                                                                    20
tagaaggcac agtcgaggct
<210> 35
<211> 43
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      {\tt oligonucleotide}
<400> 35
                                                                    43
ccggctagct agccgcgatt ccggggggca ggagggcgag gag
<210> 36
<211> 69
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
ctaggcatca tcatcatcat cataatggtc ataccggtga acaaaaactc atctcagaag 60
aggatctgg
```

```
<210> 37
<211> 69
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 37
ctagccagat cctcttctga gatgagtttt tgttcaccgg tatgaccatt atgatgatga 60
tgatgatgc
<210> 38
<211> 35
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 38
                                                                    35
ccggctagct agcgctggca ttggcaggca cgtag
<210> 39
<211> 35
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 39
                                                                    35
ccggctagct agccaggatc tctgtgagac ttcga
<210> 40
<211> 35
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      oligonucleotide
<400> 40
                                                                    35
ccggctagct agcgcccttg caccgggcac aacca
<210> 41
<211> 35
<212> DNA
<213> Artificial Sequence
```

C

<pre>220> 223> Description of Artificial Sequence: Synthetic oligonucleotide</pre>	
<400> 41 ceggetaget ageteceaet teegtagaea ggtag .	³-; 35
<210> 42 <211> 35 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 42 ccggctagct agcaatgccg gaggagggt cccca	35
<210> 43 <211> 15 <212> DNA <213> Artificial Sequence /	
<220> <223> Description of Artificial Sequence: Synthetic oligonucleotide	
<400> 43	15